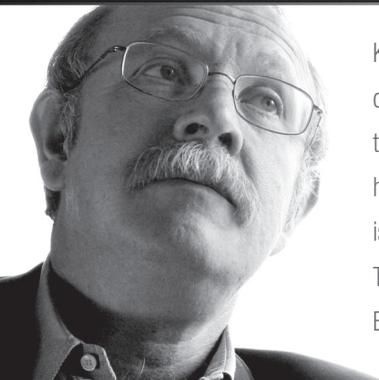


KD-DA1x2X | KD-DA1x4X

1x2/1x4 (4K@60Hz/18G/444) HDMI Distribution Amplifiers with L/R / Optical Audio & De-Embedded Audio Output

Operating Instructions



Key Digital® , led by digital video pioneer Mike Tsinberg, develops and manufactures high quality, cutting-edge technology solutions for virtually all applications where high-end video and control are important. Key Digital® is at the forefront of the video industry for Home Theater Retailers, Custom Installers, System Integrators, Broadcasters, Manufacturers, and Consumers.



KD-DA1x2X



KD-DA1x4X

Key Digital® :: 521 East 3rd Street :: Mount Vernon, NY 10553

Phone : 914.667.9700 Fax : 914.668.8666 Web : www.keydigital.com

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The Experts in Digital Video Technology and Solutions™

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[KD-DA1x2X](#)

Visit product pages for most recent version of the manual, quick setup guide, firmware, control drivers and all additional downloads.



[KD-DA1x4X](#)

Always follow the instructions provided in this Operating Manual.

- › **Note:** Please visit www.keydigital.com for the latest product documentation and software downloads. Product features and specifications are subject to change without notice.

Introduction

Key Digital® KD-DA1x2X/KD-DA1x4X are 4K/18G HDMI Distribution Amplifiers engineered to offer the best in quality, performance, and reliability, while providing a cost-effective HDMI signal distribution solution. Designed for professional audio video installations in digital signage applications, KD-DA1x2X/KD-DA1x4X enables a single video source to be displayed on multiple video displays. L/R analog and digital Optical de-embed ports provide an external audio signal of the connected source so it may be fed into amplifiers, distributed audio systems, and digital audio sound bars. KD-DA1x2X/KD-DA1x4X HDMI Distribution Amplifiers support all SD, HD, VESA and Ultra HD/4K video standards with HDR header information included in a variety of 4K EDID handshakes. The Distribution Amplifiers feature status-monitoring LEDs, and support of HDR10, HDCP 2.2 and 4K.

Key Features

- › **HDMI Signal Distribution:** 1 HDMI source to 2/4 HDMI outputs/displays
- › **Ultra HD/4K Support:** 4096x2160 or 3840x2160 24/25/30/60hz at 4:4:4 (signals up to 18Gbps bandwidth)
- › **HDCP Licensing:** Fully licensed and compatible with HDCP 2.2
- › **HDR10 (High Dynamic Range):** More life-like images through a greater range of luminance levels
- › **Resolution Support:** Supports all SD, HD, and VESA (VGA, SVGA, XGA, WXGA, SXGA, UXGA) up to 4096x2160p.
- › **Deep Color Support:** Up to UHD/4K 30Hz 4:4:4/12 bits or 60Hz 4:4:4/8 bit
- › **Audio De-embedding:** Audio of the selected HDMI input is output at the digital Optical and analog 3.5mm stereo connectors.
- › **Full Buffer System™:** Manages TMDS re-clocking / signal re-generation, HDCP authentication to source & display, and EDID Control handshake
- › **EDID Management:** Internal library with 15 internal EDID handshakes including 4K with HDR in addition to native EDID data copied from the output/display 1
- › **Lossless Compressed Digital Audio:** Dolby® TrueHD, Dolby® Digital Plus, DTS-HD Master Audio™, and Dolby® Atmos
- › **CEC Disconnect:** Prevents unwanted control of source

Included Accessories

- › Power Supply: KD-PS5V2ASC 5V/2A DC power jack, screw-in type
- › Mounting Brackets: 2 L-shaped

Quick Setup Guide

CONNECT:

Test for proper operation of the unit and cables in your system before permanently securing the unit for final installation. Ensure that you leave enough ventilation space to provide sufficient airflow and cooling.

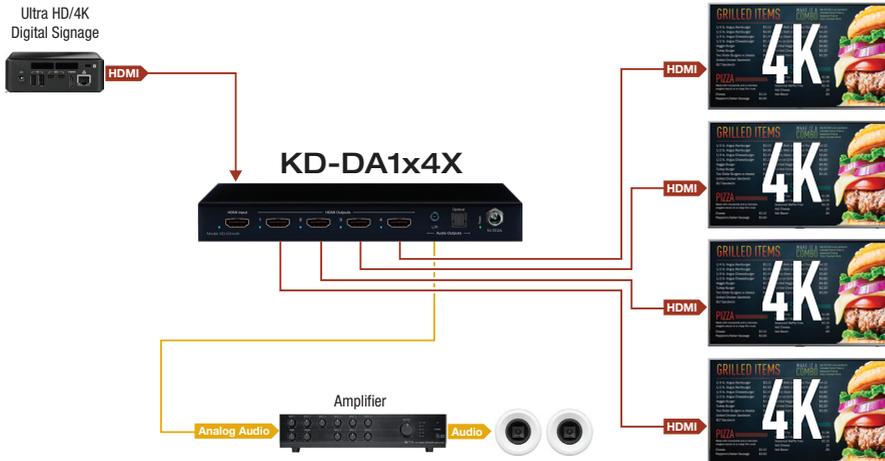
1. Begin with the KD-DA1x2X/KD-DA1x4X unit and all input/output devices turned off with power and CAT cables removed
2. Connect your HDMI source to the input port of KD-DA1x2X/KD-DA1x4X unit
3. Connect your HDMI displays to the output ports of KD-DA1x2X/KD-DA1x4X unit
4. Connect the analog and/or digital audio amplifiers/receivers via the analog 3.5mm and optical outputs
5. **BEFORE** connecting power supply to power outlet, screw-in the power supply to the KD-DA1x2X/KD-DA1x4X unit
6. After all connections are made, plug-in power supply to power outlet
7. Power on input and output devices

CONFIGURE:

- > The default EDID handshake is 4Kx2K@60, 18G, HDR, 2ch audio (setting A). Use the EDID rotary dial to choose the desired handshake that will be provided to the connected source.



Application Example



Note: 18Gbps signal extension requires all 18Gbps supported HDMI cables.

Rack Mounting:

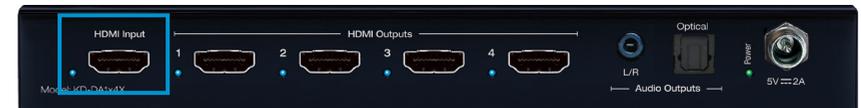
In addition to mounting with the supplied L-Brackets, multiple KD-DA1x2X/KD-DA1x4X may be mounted in KD-SMS16 using the side mounting screws. KD-SMS16 is a mounting shelf for Key Digital units with side mounting screw spacing of 2.912", 2.582", or 2.252"



Do **NOT** exceed 12 units as doing so will result in unit damage by overheating.

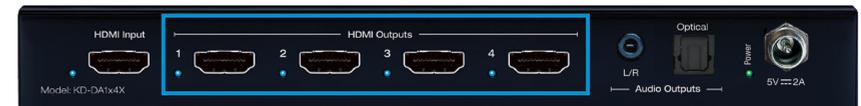
Front & Rear Panel Connections, Buttons, and LEDs

REAR PANEL



HDMI Input

- > The HDMI input is located on the left side of the back panel.
- > Blue LED illuminates solid to indicate an active HDMI signal is incoming.



HDMI Outputs

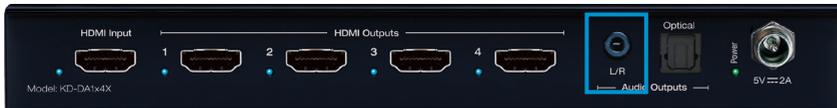
- > 2/4 HDMI outputs are located on the center to right side of the back panel.
- > Blue LED illuminates solid when Hot Plug Detection (HPD) is received from the connected display/output device

HDMI Input/Output Port Specifications

- › Supports up to UHD/4K @ 50/60 fps [4:4:4], 18Gbps signals
- › See Supported standard 4K Video Formats table
- › Supports HDR10
- › Compliant with HDCP 2.2 and previous
- › Supports lossless compressed audio formats including Dolby® TrueHD, Dolby® Digital Plus, Dolby Atmos®, and DTS-HD Master Audio™
- › CEC and ARC are not supported
- › For Display Port sources/monitors, use active converters

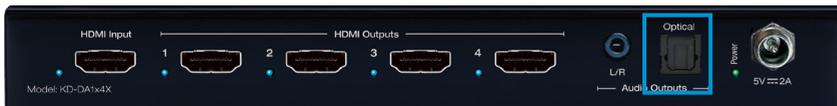
Supported standard 4K Video Formats:

	Resolution	Bandwidth
1	4K@24/25/30 [4:4:4] 8bit	< 10.2Gbps
2	4K@24/25/30 [4:2:2] 8/10/12bit	< 10.2Gbps
3	4K@50/60 [4:2:0] 8bit	< 10.2Gbps
4	4K@24/25/30 [4:4:4] 10/12bit	< 18Gbps
5	4K@50/60 [4:2:2] 8/10/12bit	< 18Gbps
6	4K@50/60 [4:2:0] 10/12bit	< 18Gbps
7	4K@50/60 [4:4:4] 8bit	< 18Gbps



Analog L/R Audio Output

- › 3.5mm stereo jack with de-embedded audio from the selected HDMI source
- › Automatically mutes if audio formatting is not PCM 2ch



Optical Audio Output

- › Optical audio output with de-embedded audio from the selected HDMI source
- › SPDIF IEC 60958 format
- › Supports multi-channel Dolby® and DTS™ surround formats up to 5.1
- › Automatically mutes if audio formatting is not PCM, Dolby®, or DTS™

Audio Ports Specifications

- › Each audio output drives audio signals up to 2VRMS with a sampling rate of 192KHz
- › There are no volume or tone control features
- › There are no DSP features

Audio Input Signal Format	Audio L/R Output	Digital Audio Output (Optional)
2ch PCM	Pass-Through	Pass-Through
Multi-Channel PCM	Front L/R Pass-Through	MUTE
Dolby DTS	MUTE	Pass-Through
HD Audio	MUTE	MUTE

FRONT PANEL



Input Active LED button

- › 1 blue LED illuminates solid to indicate an active incoming HDMI signal



Output Active LED

- › 2/4 blue LEDs illuminate solid when Hot Plug Detection (HPD) is received from the connected display/output device



Service (Factory) USB

- › This port is for factory servicing only. Does not have standard USB functionality.



Forced HPD Troubleshooting Tool

- » When ON, Hot Plug Detection voltage is fixed on to the connected display
- » Standard HPD behavior when set to OFF position



EDID Handshaking Rotary

- » EDID authentication is provided from the unit to the connected inputs/sources.
- » The EDID file (AKA “handshake”) is selected using the EDID rotary on the unit and provides a list of compatible video and audio formats as well as digital data, informing the source device what it should output.
- » Most sources will comply with a new EDID file without a power-cycle, but devices do behave differently
 - » Adjustments may speed up sync time during source selection.

Position	EDID Handshake Description	EDID Rotary
0	Copy EDID from HDMI Output 1	 <p>Note: Default position is “A”</p> <p>IMPORTANT: Please apply light pressure to the EDID rotary when making your selection.</p>
1	1080i, 2CH AUDIO	
2	1080i, DOLBY/DTS 5.1	
3	1080i, HD AUDIO	
4	1080p, 2CH AUDIO	
5	1080p, DOLBY/DTS 5.1	
6	1080p, HD AUDIO	
7	4Kx2K@60, 10.2G, HDR, 2CH AUDIO	
8	4Kx2K@60, 10.2G, HDR, DOLBY/DTS 5.1	
9	4Kx2K@60, 10.2G, HDR, HD AUDIO	
A	4Kx2K@60, 18G, HDR, 2CH AUDIO	
B	4Kx2K@60, 18G, HDR, DOLBY/DTS 5.1	
C	4Kx2K@60, 18G, HDR, HD AUDIO	
D	1280x720p@60 DVI (no audio)	
E	1920x1080p@60 DVI (no audio)	
F	4Kx2K@30, 10.2G, HDR, 2CH AUDIO	

»

Specifications

Technical:

- » Input (Each): HDMI Connector, Type A, 19 Pin Female
- » Output: HDMI Connector, Type A, 19 Pin Female
- » Bandwidth: TMDS bandwidth 18 Gbps
- » DDC Signal (Data): Input DDC Signal - 5 Volts p-p (TTL)
- » HDMI Video/Audio Signal: Input Video Signal - 1.2 Volts p-p
- » Power Supply: KD-PS5V2ASC, 5V/2A, 100-240VAC, 50-60Hz, Interchangeable head, screw-in connector

General:

- » Regulation: CE, RoHS, WEEE
- » Enclosure: Black Metal
- » Product Dimensions: KD-S2x1X - 4.3” x 1.1” x 2.8”; KD-S4x1X - 6.25” x 1.1” x 3.1”
- » Packaging Dimensions: KD-S2x1X - 6.3” x 4.2” x 3.7”; KD-S4x1X - 9.8” x 4.5” x 3.35”
- » Product Weight: KD-S2x1X - 0.5 lb; KD-S4x1X - 0.9 lb
- » Shipping Weight: KD-S2x1X - 0.7 lb; KD-S4x1X - 1.5 lb

Important Product Warnings:

1. Connect all cables before providing power to the unit.
2. Test for proper operation before securing unit behind walls or in hard to access spaces.
3. If installing the unit into wall or mounting bracket into sheet-rock, provide proper screw support with bolts or sheet-rock anchors.

Safety Instructions:

Please be sure to follow these instructions for safe operation of your unit.

1. Read and follow all instructions.
2. Heed all warnings.
3. Do not use this device near water.
4. Clean only with dry cloth.
5. Install in accordance with the manufacturer's instructions.
6. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
7. Only use attachments/accessories specified by the manufacturer.
8. Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way including:
 - » Damage to the power supply or power plug
 - » Exposure to rain or moisture

Power Supply Use:

You **MUST** use the Power Supply **PROVIDED** with your unit or you **VOID** the Key Digital® Warranty and risk damage to your unit and associated equipment.

Contacting Key Digital®

Technical Support

For technical questions about using Key Digital® products, please contact us at:

- › Phone: 914-667-9700
- › E-mail: tech@keydigital.com

Repairs and Warranty Service

Should your product require warranty service or repair, please obtain a Key Digital® Return Material Authorization (RMA) number by contacting us at:

- › Phone: 914-667-9700
- › E-mail: rma@keydigital.com

Warranty Information

All Key Digital® products are built to high manufacturing standards and should provide years of trouble-free operation. They are backed by a Key Digital Limited 3 Year Product Warranty Policy. <http://www.keydigital.com/warranty.htm>